REGION 6 EXECUTIVE SUMMARY

TOPIC: Fansteel/FMRI Site, Muskogee, OK

DATE: April 20, 2020 CONTACT: LaDonna Turner

PURPOSE/ACTION NEEDED: Information Update

BACKGROUND:

The Fansteel facility is located on 110 acres along the Arkansas River about 2.5 miles northeast of Muskogee, Oklahoma. From 1957 to 1989, the facility produced tantalum and columbium metals from uranium ore, thorium ore, and tin slag feedstock by using an acid digestion process. Radioactive residues from the operations were disposed in onsite acidic ponds. Most of the facility is subject to a Nuclear Regulatory Commission (NRC) license. NRC stated that approximately $78 million (2016 estimate) of decommissioning work remains. NRC currently has $1.7 million in a decommissioning trust for the facility.

Fansteel filed for Chapter 11 bankruptcy protection in 2002 and again in 2016. The 2016 proceeding is ongoing. Under the 2002 bankruptcy settlement, Fansteel created a subsidiary, FMRI, as a vehicle to fulfill Fansteel's decommissioning obligations under its NRC license. FMRI has been maintaining the site and operating groundwater and surface water treatment units, the effluent of which is subject to state permits to prevent unpermitted discharges to the Arkansas river, among other things. Fansteel has been funding FMRI's operation and maintenance activities at the cost of approximately 27,500 a month.

On October 17, 2019, Fansteel notified NRC that it would be unable to continue funding FMRI's operation and maintenance activities. NRC amended its decommissioning trust agreement to allow for the disbursement of decommissioning trust funds to FMRI to provide for the maintenance of public health and safety at the Fansteel facility. Disbursement from the decommissioning trust to FMRI began in early November 2019. There is approximately $1.7 million in the decommissioning trust. While money from the NRC decommissioning trust can fund the operation and maintenance of the facility for three to five more years, and more funds may become available from the bankruptcy (see below), there is still not enough money for a permanent solution to the environmental problems at the facility

CURRENT STATUS:

- EPA is working with its state and federal partners to evaluate all federal, state and private party clean-up alternatives, including potentially proposing the site to NPL.
- DOE is reviewing information EPA received in response to its §104(e) request to determine if the facility is eligible for the Formerly Utilized Sites Remedial Action Program (FUSRAP).
- On April 1, 2020, Fansteel filed with the bankruptcy court a draft Environmental Settlement Agreement among Fansteel, FMRI, NRC, ODEQ and EPA. The Environmental Settlement Agreement will govern what funds the environmental authorities receive from the bankruptcy.
- Fansteel is still attempting to sell a piece of its property. A portion of the proceeds from sale of the property will go into the decommissioning trust in accordance with the Environmental Settlement Agreement. The Port of Muskogee has expressed renewed interest in purchasing the property;

ODEQ is facilitating discussions between the Port and Fansteel.
- EPA enforcement has tasked its contractors to review Fansteel's §104(e) response to aid in PRP search.

ENVIRONMENTAL/PUBLIC HEALTH CONCERNS:

- Groundwater underlying the facility is contaminated with metals, radionuclides and trichloroethene.
- EPA conducted an emergency response action in August 2018 to address the threat to human health and the environment by removing thousands of lab chemicals and over 3,000 gallons ammoniuum hydroxide at the site.
- Radiation surface contamination in areas is up to 45 times background levels.

TECHNICAL CONCERNS:

- Without funding there will be no on-site security which may result in trespassing and potential exposure to radiation.
- Without funding the groundwater and surface water will no longer be collected and treated in accordance with NRC License and Oklahoma Permit. Surface water would likely overflow from ponds and untreated groundwater would contaminate the Arkansas River.

REGULATORY/LEGAL REQUIREMENTS:

- The Port of Muskogee requested a Prospective Purchaser Agreement (PPA) if it purchases a parcel of Fansteel's property. EPA is currently working with EPA OGC to determine if a PPA could still be granted to the Port if it does not serve as a Trustee.
- Oklahoma is an "Agreement State" under NRC's regulations. In Agreement States, responsibility for decommissioning licensed facilities where the licensee lacks funds falls to the State.

COMMUNITY CONCERNS:

- The State of Oklahoma has expressed concerns regarding this site and supports long term clean-up.
- The Cherokee and Muscogee Creek Nations have expressed concern regarding this site.

RECOMMENDATIONS:

- Continue to work federal, state and tribal partners to identify clean-up authorities to address this site.
- After public comment period expires, review any comments received and execute Environmental Settlement Agreement.
- Initiate a removal assessment to determine the need and cost of potential removal activities that would mitigate on-site threats. The following are removal options identified (see attached Figure for locations):
    - Former Pond 2 - The open trench had the highest gamma readings noted during the July, 2019 survey (45X background). Recommend using a planning task order to evaluate

making this location a permanent repository for all on-site radioactive material. Evaluation should include: suitability of this site compared to others on-site; likelihood of inundation and or damage from flooding; potential to use in-situ treatments to reduce isotope mobility (like lime for example); protection of groundwater and surface water and other factors.

- Sodium Reduction Building - Contains 1000-2000 one ton "supersacks" of soil contaminated with isotopes of uranium and thorium. The way the bags are stacked and the potential condition of the bags will need to be evaluated before a plan to sample or move them can be created. Recommend using a planning task order to evaluate moving this material to a permanent on-site repository at the most suitable location as determined by the results of the planning task order.
- Soil Stockpile - This soil was collected from french drains around now closed ponds. The July 2019, gamma survey indicated 27X background gamma radiation. The stockpile is covered above and below with an HDPE liner. Recommend using a planning task order to determine if this soil is suitable to add to an on-site permanent repository at the most suitable location as determined by the results of the planning task order.
- Gamma Anomalies at Pond 6 and outside Sodium Reduction building - Recommend using planning task order to evaluate source of gamma radiation and develop plan to move radioactive isotopes to on-site repository at the most suitable location as determined by the results of the planning task order.
- Groundwater and Surface Water Treatment - The facility uses a trench and sump treatment system to capture groundwater from an unconfined alluvial aquifer. The system captures approximately 14,000 gallons per day (gpd). The system is designed to treat metals only and treatment is by manual addition of lime to raise pH and drop metals into several settling ponds set in series. In addition, the facility is under order from the NRC to treat surface and groundwater prior to discharge under a NPDES permit (NPDES Permit requirements attached). This treatment includes partially closed Pond 3 and its associated french drain (15,000 gpd). WIP has been removed from Pond 3. The pond still contains residual radioactive isotopes, chromium, cobalt, manganese, zinc and mercury. Recommend using planning task order to evaluate:
    - Closing and capping Pond 3 to potentially reduce generation of contaminated groundwater
    - Evaluating whether treatment system is capturing chlorinated solvents and if so, is system adequate to treat them
    - Upgrading antiquated manual treatment system